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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,082

01/05/2005

Takashi Fukuda

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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,082	Applicant(s) FUKUDA, TAKASHI	
	Examiner ROBERT HODGE	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/5/05 & 2/20/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-14 in the reply filed on 9/17/08 is acknowledged. The traversal is on the ground(s) that independent claims 1 and 15 share the same method steps of operating. This is not found persuasive because claim 1 is an apparatus claim which is a completely different statutory class than claim 15. Furthermore the only common technical feature among claims 1 and 15 is the "antifreeze mechanism" i.e. heater which was already shown to applicants in EP 1036996 and unity is still lacking.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 1/5/05 & 2/20/07 have been considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 6,248,462 hereinafter Bonville.

Bonville teaches a fuel cell power plant having an antifreeze mechanism which comprises a heater (column 7, line 58 - column 8, line 19), a sensor which detects a parameter for estimating freezing probability of water inside the fuel cell power plant (i.e. temperature sensor 47) and a programmable controller (column 8, lines 20-41). Bonville also teaches a water recovery mechanism (column 5, line 16 – column 6, line 12 & column 7, lines 18-57). It is noted that claims 1-8 and 11 contain functional limitations and since all of the structure that is necessary to perform the functional limitations as recited in the claims has been found in the prior art, Bonville reads on the claims as recited, see MPEP 2114. Furthermore Bonville does teach many of the functions of the instant claims to prevent freezing of water in the fuel cell system to prevent damage from occurring to the fuel cell stack. See also column 3, line 50 - column 9, line 25. Regarding the means plus function language in claim 14, as was already stated above all of the structure that is necessary to perform the functional as recited in claim 14 has been found in the prior art and therefore Bonville also reads on claim 14 as recited.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonville as applied to claim 1 above, and further in view of U.S. Patent No. 6,242,119 hereinafter Komura.

Bonville further teaches that the fuel cell comprises an anode, a cathode, a condenser, a water tank and a humidifier (column 4, line 64 – column 5, line 49 and column 7, lines 18-57).

Bonville does not teach a drain valve to drain the excess water from the fuel cell system but does teach that it is necessary to remove any excess water from the fuel cell system (see citations above).

Komura teaches a fuel cell system comprising an anode, a cathode, a condenser and a water tank with a drain valve 22 (column 2, line 35 – column 3, line 45).

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At the time of the invention it would have been obvious to one having ordinary skill in the art to provide a drain valve in Bonville as taught by Komura in order to provide the ability to remove excess water from the fuel cell system to prevent flooding of the fuel cell system (Bonville column 5, lines 18-49) as well as to prevent freezing of the water in the fuel cell when the system is stopped to thereby prevent damage to the fuel cell from the freezing (Komura Abstract).

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonville as applied to claim 1 above, and further in view of U.S. Pre-Grant Publication No. 2003/0003334 hereinafter Yoshizawa.

Bonville does not teach a temperature sensor to monitor a temperature outside of the fuel cell system.

Yoshizawa teaches a fuel cell system that comprises an atmospheric temperature sensor 51 that detects an atmospheric temperature outside of the fuel cell system (paragraph [0044]).

At the time of the invention it would have been obvious to one having ordinary skill in the art to provide an atmospheric temperature sensor in Bonville as taught by Yoshizawa in order to monitor the atmospheric temperature outside of the fuel cell system in order to monitor the temperature of the fuel gas and air entering the fuel cell (i.e. inlet temperatures) thereby providing the ability to calculate heat exchange between the temperature inside the fuel cell and the reactants entering the fuel cell thus providing a means to determine whether or not the secondary thermal management loop of Bonville needs to provide further heat to the fuel cell to maintain the fuel cell at

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its optimal operating temperature (Bonville column 8, line 4 – column 9, line 25 and Yoshizawa paragraph [0044]).

Conclusion

It is noted that the International Search Report filed on 1/5/05 contains numerous "X" references. The above grounds of rejection does include some of the cited references, however applicants have also amended the claims and therefore not all of the cited "X" references are applicable anymore. Furthermore all of the claims have been rejected and in an effort to speed up prosecution multiple rejections of the same claims will not be made.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Hodge/
Examiner, Art Unit 1795